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ABSTRACT

This study examines the relationship between temperament characteristics and skill manifestations or deficits in two groups of kindergarten children, one in Ohio and one in Taipei, Taiwan. Its purposes were to determine if such a relationship did exist and, if so, to see if it obtained cross-culturally. Teachers and parents assessed children on the Barclay Early Childhood Assessment System (BECAS) to determine deficits in particular skill areas. Teachers also rated the same children on the Martin Temperament Assessment Battery. Pearson product-moment correlations between the Martin and the BECAS were done separately for the two cultural groups. Additionally, zero-order correlations were done for each variable that had correlated with a target scale at the .05 level of significance or better. Fifty-three percent of the predictors that were significantly related in the American sample were also significant for the Chinese sample. Children with high levels of skill deficits from both cultures were more distractible, less sociable, more emotional, and were more likely to be male. This study suggests that there are close relationships between personality charcteristics and skill deficits in kindergarten children and that these relationships are quite similar across cultures.
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SKILL DEVELOPMENT AND TEMPERAMENT IN KINDERGARTEN CHILDREN: A CROSS-CULTURAL STUDY

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Abstract

This study examined the relationship between temperament characteristics and skill deficits in two groups of kindergarten children, one in Ohio and one in Taipei, Taiwan. Its purposes were both to determine if such a relationship did exist, and if so to see if it obtained cross-culturally. Teachers and parents assessed children on the Barclay Early Childhood Assessment System (BECAS) to determine deficitis in particular skill areas. Teachers also rated the same children on the Martin Temperament Assessment Battery. Pearson product-moment correlations between the Martin and the BECAS were done separately for the two cultural groups. Additionally, zero-order correlations were done for each variable that had correlated with a target scale at the .05 level of significance or better. 53% of the predictors that were significantly related in the American sample also were for the Chinese sample. Children with high levels of skill deficits from both cultures were more distractible, less sociable, more emotional, and were more likely to be male. This study suggests that there are close relationships between personality characteristics and skill deficits in kindergarten children and that these relationships are quite similar across cultures.

Skill Development and Temperament in Kindergarten Children: A Cross-Cultural Study

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Introduction

Although there have been a number of studies dealing with temperament characteristics of newborns and infants (Thomas & Chess, 1977), and others dealing with older elementary school children (Barclay, 1978, 1982) and adolescents and young adults (Buss and Plomin, 1975), there are fewer such studies relating to kindergarten children. Those that do exist have explored such areas as the possible relationship between temperament and psychopathology (Johnson, Basham & Gordon, 1982), and temperament and school adjustment (Carey & McDevitt, 1977; Feuerstein & Martin, 1981). None up to this time have attempted to relate temperament with skills needed to succeed in the school environment. Moreover, the thrust to identify temperament characteristics of children is viewed by some researchers as somewhat irrelevant to the question of skill development. That is, while many cognitively-oriented theorists believe that the determination of a core area of major personality characteristics which is explanatory of many developmental processes is important, many behavior-oriented theorists can see no viable connection between these observed temperament characteristics and skill manifestations or deficits.

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To demonstrate a relationship between skill acquisition and temperament is therefore a needed linkage in research which could tie together both cognitive and behavioral foci. It should enable school personnel to go beyond mere identification of temperament characteristics and help them to pinpoint intervention strategies in specific areas of skill deficits for particular children that can be used during kindergarten so as to maximize the children's chances for success in elementary school.

The purpose of this study was to examine whether there exists a relationship between temperament characteristics and specific skill manifestations or deficits. And if there is such a relationship, whether it held across cultures? Thus the specific questions addressed are: (1) do temperament variables have any relationship to levels of skill development in kindergarten children? And further, (2) if there are such relationships observed, are they similar or different in terms of cross-cultural comparisons ? To answer these questions the author administered a temperament scale and an early childhood skill assessment instrument to two kindergarten groups, one in the United States and one in Taiwan.

Method and Instruments

Two samples of children in kindergarten classes were utilized in this study. The American sample consisted of 83 children who were assessed in the spring of 1982 in the central Ohio town of Cambridge. The Chinese sample was 46 children assessed in Taipei, Taiwan, Republic of China in the spring of 1983. Both samples included children who were either five or six years old at the time of testing, plus a very few seven-year-olds

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in the Chinese sample. The American sample consisted of children attending public school kindergarten classes in the Cambridge community. The Chinese sample was drawn from children attending a kindergarten class in the laboratory preschool at the National Taiwan Normal University .

Two instruments were used. The first was the Barclay Early Childhood Assessment System, and the second was the Martin Temperament Inventory. The Barclay Early Childhood Assessment System (Barclay & Barclay, 1976; 1985) is a skill-oriented observational instrument which contains sixteen scales. These scales are combined to provide four major measures of sensory-motor perceptual, discriminatory learning, self-concept and social skill assessment areas. Figure 1 provides a flow chart describing each of the scales and how they are integrated.

--- place figure 1 about here ---

Each of the items of the scales relates to a specific skill. For example, in the visual and auditory imitation area item 3.11 is "can imitate a loud sound", item 3.15 is "can match colors". Teachers judge the quality of the skill by rating "satisfactory " i.e., the child manifests the skill, "needs improvement" which means the child can do the task sometimes or poorly, and "deficit" which means the child cannot do the task at all. The items are summed up by scale, and on each scale the higher scores represent greater deficits. Thus a high score on a given scale represents a deficit rather than ability. This is true of all of the scales except the self-concept scale which is a series of statements asked of the child . The self-concept measure is really a self-competency measure for the child is asked whether he or she

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can "run fast" or "can pound with a hammer" or "can make the class laugh."

The Barclay Early Childhood Assessment System is a diagnostic skill assessment instrument designed to provide information on specific deficit areas to teachers based either on norms derived from the kindergarten group itself (when teachers wish to know who in a given class might be most in need of help) or on norms established for the age group. The key feature of the system which is computer processed is that it provides direct suggestions for strategies of intervention designed to increase skills and specifically targeting focus deficit areas. In addition to the teacher-derived observations, parent ratings are also obtained in each of the four major target areas. Parents are asked to evaluate the skill levels of their children along the same major dimensions as teachers observe. The computer processing then provides a comparison of both the observations in the classroom and the parent rating and determines whether they are convergent or discrepantin their evaluation of a particular child. In the latter instance, the computer program suggests the need for further information and a possible conference between teacher and parent. By utilizing the parental input, this instrument causes parents to become involved in the assessment process. If and when deficits are identified it becomes easier to obtain parent cooperation in the targeted skill development training.

The second instrument utilized is the Martin Temperament Assessment Battery,(Martin, 1984). This instrument which is conceptually derived from the Thomas and Chess studies consists of six scales that measure Activity, Adaptability,

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Approach/Withdrawal, Emotional Intensity, Distractibility and Persistence. In addition, three factor scores are derived from the utilization of the six scales in an additive fashion. The three factor scores are Emotionality, Sociability and Persistence. Martin's instrument can be completed by teachers or parents or both groups. There is thus also the opportunity to provide multiple inputs into the observational assessment system.

In this study, teachers of both groups made the assessment of skills and evaluated the temperament characteristics. Parents also provided input on the BECAS. While the Chinese parents filled out the Martin questionnaire, those of the Cambridge children did not. Therefore only teacher assessments on the Martin will be reported here. Both the Barclay Early Childhood Skill Assessment System and the Martin Temperament Scales were translated into Chinese for the Chinese assessment.

The data were analyzed in the following steps. First means, and standard deviations were obtained for both males and females on all variables for each group. A t test was run between males and females for each group, but not between cross-cultural groups. These data are reported in table 1.

--- place table 1 about here ----

Then the 19 scores obtainable from both instruments were correlated using Pearson Product Moment Correlation. In this correlation matrix, male and female scores for each group were combined, since only a very limited number of significant differences had been found between the sexes. Table 2 shows the correlation matrix for the American sample at the top of the grid, and that for the Chinese sample in the lower half of the table.

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---place table 2 about here ---

Subsequently for clearer interpretation zero-order correlations were reported for each variable (except parent ratings) utilizing only those variables that correlated with the target scale at the .05 level of significance or better. Table 3 presents these data for the American sample and table 4 for the Chinese group.

--- place tables 3 and 4 about here ---

Findings

Sex. Six variables were observed to be predictive at the .05 level or better for sex. Males in the American group were identified as higher on activity and emotionality and lower on persistence and adaptability than females. In the Chinese group, activity, emotionality and higher sensory -motor-perceptual deficits were predictive of males. For both groups activity and emotionality were significant predictors of the male sex.

Age. Though no variables were predictive of age in the American sample, three variables were predictive of age in the Chinese group. These were the level of sensory-motor deficits, social development deficits and parental ratings of sensory-motor deficits. This difference may be due to the fact that the American sample was more homogenous in age because of uniform school age requirements, while the Chinese sample included a few 7 year olds. The Manual of the Barclay Early Childhood Skill Assessment System indicates considerable differences in many of the variables of the inventory which relate to age.

Sensory-Motor-Perceptual Deficits. Ten predictors were found to be significantly related to either the American or Chinese

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sample. Three of these were in common. These were discrimination learning deficits, social development deficits and parental ratings of social development. In the American group, children who showed high sensory-motor-perceptual deficits were also identified as low on persistence. In the Chinese group, such children were more often males, more often younger, and lacking in sociability and adaptability.

Discrimination-Learning Deficits. In all ten predictors were found to be significantly related to this area either for the American or Chinese sample. Three were in common between the two samples and these were sensory-motor-perceptual deficits, approach-withdrawal and sociability.The latter two loaded negatively on discrimination learning deficits. That is, children with such deficits were low on both approach-withdrawal and sociability. In addition, for the American group, parental ratings of this deficit as well as and negative loadings on adaptability and persistence were observed. In short, children who have a number of discrimination-learning deficits also tend to be withdrawn and anti-social in their temperament characteristics.

Social-Development Deficits. These deficits relate to perceived skills in attending-responding, and social interaction. Ten predictors are observed for both samples and four are held in common. These four are: sensory-motor-perceptual deficits, adaptability , approach-withdrawal, and sociability. The latter three all load negatively. So as with other deficit areas, adaptability, sociability and approach temperament characteristics tend to be absent or lower in children with social-development deficits.

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Self-Concept. As explained earlier, the self-concept measure of the Barclay instrument is essentially one of self-competency skills. A child is simply asked whether he/she can perform a given task or not. For the American sample only the Martin activity scale predicts self-concept. But for the Chinese group the parental social development ratings, adaptability and sociability all are related significantly to self-concept. In addition, the absence of social development deficits is noted. Thus self-competency in the American sample seems to be a by-product of activity, and, in the Chinese group, it is related to social and adaptive skills.

Activity. There are ten predictors of activity which are found in one or the other of these samples. Five of these are identical in the two groups compared. Thus activity in children in both of these samples is characterized by high correlations with the factor score of emotionality, the scale score of emotional intensity, distractibility, the two scores of persistence (showing negative signs) and male sex. The American sample showing a high score in activity tends also to be high in self-concept, and low in adaptability. High scoring Chinese children tend to be rated lower on discriminatory-learning deficits and show higher scores on approach-withdrawal.

Adaptability. Ten variables show a predictive relationship to adaptability. Of these, eight are common to both samples. Highly adaptive children tend to show high scores on sociability, persistence, the approach end of the approach-withdrawal scale, and emotionality. They also tend to be lower on deficits related

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to sensory-motor-perceptual areas and social development as well as the temperament variable of distractibility.

Approach-Withdrawal. Again ten variables show a predictive relationship to this scale. Four of them are held in common. They are: sociability, emotionality, and persistence in a positive relationship and social-developmental deficits in a negative relationship. As might be expected several indicators of other skill deficits are also present and negatively predictive of this variable.

Emotional Intensity. This scale is predicted by seven other variables and five of them are in common between the two samples. They are emotionality, activity, approach-withdrawal, distractibility, all of which correlate positively, and persistence which correlates negatively.

Distractibility. This scale is predicted by eleven other variables between the two samples. Seven predictors are in common. They are activity, emotionality, emotional intensity, all loading positively and sociability, adaptibility, and persistence loading negatively. Deficits in various skill areas and parental ratings are noted separately for the two samples.

Persistence. The persistence scale has eleven predictors from one or the other sample and seven are held in common. Children high in persistence tend also to be high on the factor scores of persistence and sociability, to be low on activity, emotional intensity and the factor score of emotionality, as well as on social development deficits.

Emotionality - Factor Score. On the factor score of emotionality there are nine significant predictors found between

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the two groups. Of these nine, eight are held in common. Activity, emotional intensity, distractibility and maleness load positively on emotionality for both samples. On the other hand, both samples show negative relationships to the adaptability and persistence variables.

Sociability = Factor Score. On this factor score eleven predictors ar significant between the two samples. Seven are held in common and include: approach-withdrawal, adaptability and persistence loading positively and distractibility, discriminatory learning deficits and social-development deficits loading negatively .

Persistence = Factor Score. The factor score of persistence shows twelve variables which are predictive between the two samples, and seven held in common. These include the scale of persistence, adaptability, and the factor score of sociability loading positively, and activity, emotional intensity, distractibility and the factor score of emotionality loading negatively.

Discussion

In the introduction to this paper two questions were raised: is there a relationship between skill deficits in kindergarten children and temperament characteristics ? and to what extent is there cross-cultural verification of those relationships ? Unquestionably, the responses to these questions are yes there is a close relationship between skill abilities or deficits and temperament characteristics. Children with skill deficits show certain types of personality traits which can be subsumed under temperament variations. The data discussed in this

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study also provide considerable support for an affirmative response to the second question. This is particularly demonstrated by looking at the percentage of predictors which are common between the two groups. Table 5 lists the number of predictors which were found that were significant at the .05 level in the correlations for each group. The number of predictors held in common and the percent in common are also listed. Overall, 53 percent of the predictors significantly related to the American sample were also significantly related to the Chinese sample. When one considers that in two 19x 19 matrices there is the possibility of 342 significant relationships (if all are significant), then the identification of 136 which are significant to some extent for both samples, and 72 which are directly equivalent for both samples suggests a great deal of cross-cultural commonality .

-- insert table 5 about here ---

The extent to which social programming and the development of social skills is different in the two cultures would suggest that if temperament variables were strictly derived from the environment, there should be rather different patterns of correlation. One would, for example, expect a lower degree of convergence in skill acquisitions and deficits across cultures since various skills are trained in different ways and are afforded different degrees of emphasis. Thus Chinese culture is extremely social in nature and a very strong bonding takes place not only to parental patterns modeled for children, but also to the entity of the state and the ancestral tradition. To be shamed for non-compliance in Chinese culture is one of the greatest

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punishments. But in American culture this is not so as specifically. Thus, one could have expected, if cultural and environmental programming are the major factors in such variance, to see a quite different pattern of relationships for skill deficits and abilities between children in the two cultures. But this was not the case. Approximately one-third of the predictors for skill deficits or skill competencies are held in common between the two samples. On the other hand, if cultural emphases were paramount in the emergence of temperament characteristics, one might reasonably expect different relationships among the Martin variables. What actually occurs is a series of common predictors ranging from a low of 40 percent in one variable to a high of 88 percent in another. For the most part the Martin variables show about 70 percent convergence between groups.

Although one cannot from a correlation study argue causality, it is apparent that children with higher levels of skill deficits tend to be more distractible, less sociable, more highly emotional, and more often male than female. These are facts which are known from other observational studies. But this study suggests that there are close relationships between personality characteristics and skill deficits.

These findings have considerable practical implications for the systematic development of skills in children. For if deficits in skill development are systematically surveyed at the kindergarten or pre-school level, and if personality characteristics associated with these deficits are identifiable, then specific interventions can be suggested to teachers, parents, and para-professionals for the development of those needed skills.

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Recognizing the coherence of personality and its relationship to competency, it is most likely that the systematic training and development of needed sensory-motor-perceptual skills, discriminatory learning and social development skills, can take advantage of personality dimensions of children to specify the content of such training. In addition, if competency as self-perceived or socially recognized constitutes a major component of self-concept, internality of control, and achievement-motivation, then the systematic identification of need deficits, and the direct intervention of programs of skill development can have a lasting and very beneficial effect on children's achievement as they enter elementary school.

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Figure 1

FLOW CHART

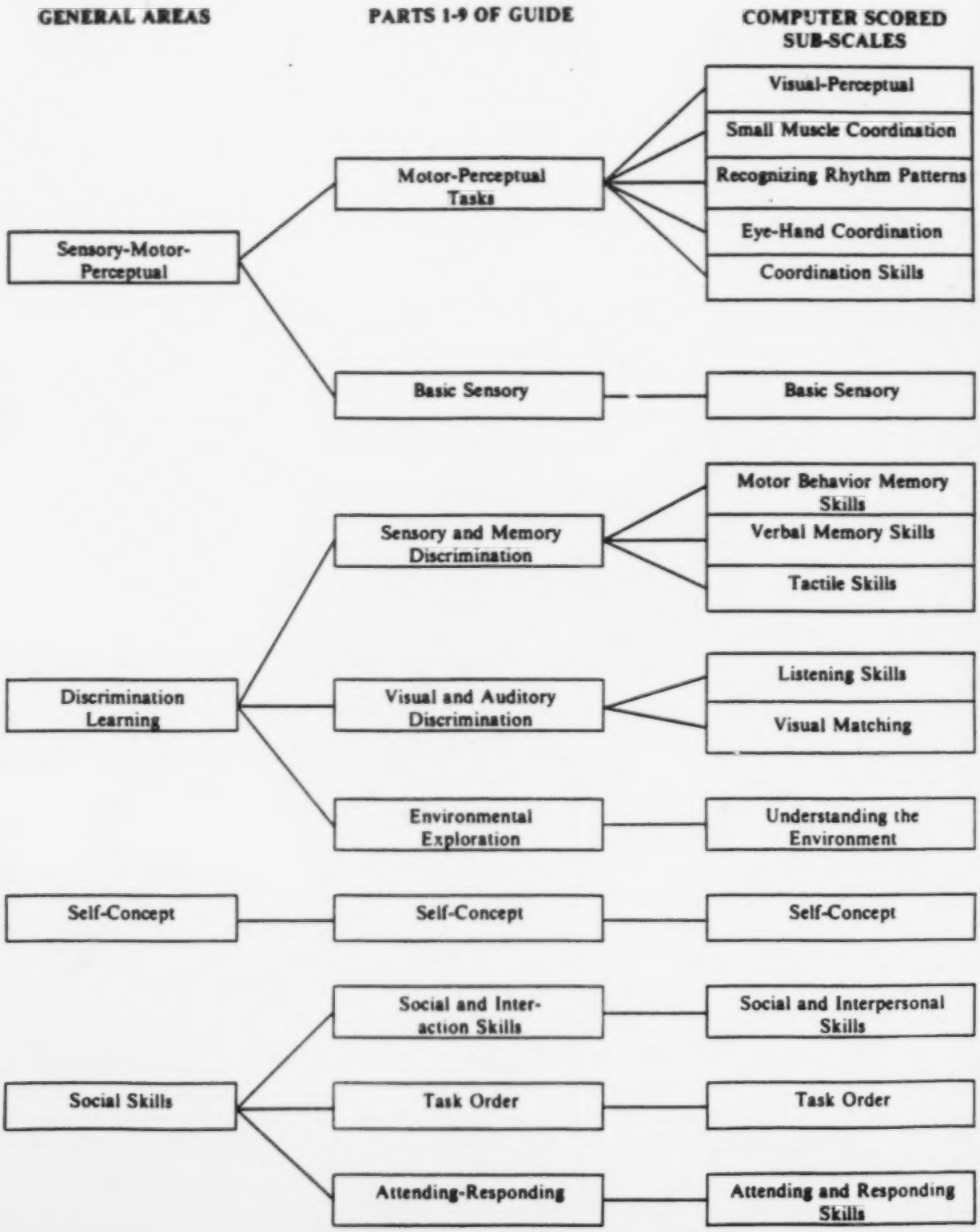

Table 1

Descriptive Statistics Chinese and American Samples

Group	Variable	Female		Male		T
		Mean	S.D.	Mean	S.D.	
Chinese	Age	6.04	.46	5.95	.38	-.70
American	Age	5.24	.43	5.26	.44	.18
Chinese	SMP	3.71	2.48	6.73	6.53	2.11*
American	SMP	7.59	5.80	7.80	5.53	.17
Chinese	DL	6.25	4.79	8.45	6.99	1.26
American	DL	10.00	8.54	10.11	7.56	.06
Chinese	SC	16.17	3.14	16.59	3.66	.42
American	SC	18.59	3.23	19.72	3.56	1.49
Chinese	SD	12.29	5.50	16.95	12.00	1.72
American	SD	6.68	8.71	6.74	6.81	.04
Chinese	PSMP	3.46	.59	3.68	.84	1.05
American	PSMP	1.05	.23	1.04	.21	-.22
Chinese	PSDL	3.50	.93	3.77	.97	.97
American	PSDL	1.03	.29	1.11	.31	1.22
Chinese	PSC	2.83	1.09	3.05	.72	.77
American	PSC	1.08	.36	1.09	.28	.08
Chinese	PSD	2.75	.68	2.73	.88	-.10
American	PSD	1.22	.48	1.15	.42	-.64

Table 1 Continued

Group	Variable	Female		Male		T
		Mean	S.D.	Mean	S.D.	
Chinese	ACT	30.00	5.28	34.36	6.83	2.44*
American	ACT	23.46	7.16	33.54	10.53	4.97**
Chinese	ADP	37.92	5.21	37.00	4.94	-.61
American	ADP	42.22	4.74	38.30	6.65	-3.01**
Chinese	APP	32.96	6.18	34.09	5.08	.68
American	APP	35.03	9.72	33.76	8.11	-.65
Chinese	EMI	31.33	5.35	33.36	5.16	1.31
American	EMI	28.41	6.44	33.15	7.55	3.04**
Chinese	DIS	30.38	5.43	31.50	5.33	.71
American	DIS	30.59	7.18	33.78	8.27	1.85
Chinese	PER	35.54	3.66	34.18	4.83	-1.07
American	PER	36.97	7.35	33.39	10.03	-1.88
Chinese	EMOT (I)	62.00	9.68	62.00	9.68	--
American	EMOT	51.86	12.21	66.70	16.15	4.62**
Chinese	SOC (II)	70.75	9.03	71.09	8.03	.13
American	SOC (II)	77.24	13.08	72.07	12.96	-1.80
Chinese	PER (III)	69.17	8.70	66.73	9.79	-.89
American	PER (III)	70.38	13.65	63.39	18.14	-1.94
N Chinese		24		22		
N American		37		46		

SMP = Sensory-Motor-Perception Deficits, DL = Discrimatory Learning Deficits, SC = Self-Concept, SD= Social Development Deficits, PSMP,PSDL,PSC, PSD, Parental ratings of Sensory-Motor-Perception Deficits, Discriminatory Learning Deficits, Self-Concept and Social Development Deficits, ACT Martin Activity, ADP Martin Adaptability, APP Martin Approach/Withdrawal, EMI Martin Emotional Intensity, DIS Martin Distractibility, PER Martin Persistence, EMOT (I) Martin Factor 1 Emotionality, SOC (II) Martin Factor 2 Sociability, PER (III) Martin Factor 3 Persistence. (* P .05 ** P .01)

Table 2 Inter-correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Sex		02	02	01	16	00	-02	13	01	-07	48	-32	-07	32	20	-20	46	-20	-21
2. Age	-10		-06	-05	15	-11	-13	-14	-15	08	18	10	14	09	04	-05	16	14	-04
3. SMP	30	-33		37	-02	26	32	48	20	36	15	-12	-07	17	18	-20	18	-11	-21
4. DL	19	-23	65		-05	37	19	20	37	29	10	-30	-26	01	25	-44	07	-31	-36
5. SC	06	06	-09	-18		-08	-01	01	-19	-06	27	03	09	03	17	-07	19	07	-11
6. SD	25	-38	51	25	-33		16	24	13	09	06	-40	-43	-13	32	-42	-02	-48	-40
7. PSMP	16	-29	44	12	12	22		51	47	42	-17	-01	-25	-07	-22	07	-14	-17	14
8. PDL	14	11	-13	-14	03	-12	25		31	44	14	-13	-14	17	05	-14	17	-16	-13
9. PSC	12	06	02	-09	14	-06	06	25		40	-14	-04	-18	-08	-19	08	-13	-14	14
10.PSD	-01	07	-02	-03	35	-19	-01	20	19		-03	09	01	06	-15	10	01	05	13
11.ACT	34	03	00	-24	23	03	-12	-28	-20	-02		-32	18	64	71	-57	94	-03	-67
12.ADP	-09	10	-31	-22	32	-42	-01	17	13	-03	-27		53	-18	-50	57	-29	82	56
13.APP	10	10	-16	-34	14	-32	-02	13	01	06	40	32		53	-12	36	36	92	25
14.EMI	19	00	11	-03	17	-07	-02	-24	-24	-01	73	-26	41		36	-15	87	27	-27
15.DIS	11	-25	22	08	-07	19	-03	-46	-01	01	58	-53	10	64		-84	62	-31	-95
16.PER	-16	26	-27	00	04	-33	-07	29	-04	-06	-52	52	02	-55	-85		-44	51	96
17.EMOT(I)	29	02	13	-19	25	-03	-10	-30	-22	-07	94	-33	40	88	66	-58		10	-55
18.SOC (II)	02	13	-29	-35	28	-45	-02	19	07	02	10	79	83	11	-26	33	08		43
19.PER (III)	43	26	-25	-04	06	-26	-01	40	-01	-04	-57	55	-05	-62	-97	95	-65	30	

Note: American Sample (N=83)reported in the upper half; Chinese Sample (N=46) reported in the lower half.

Decimals omitted P American sample :(.05)> .21, (.02)> .25, (.01)> .28 [significant correlations underlined]

P Chinese sample :(.05)> .28 (.02)> .33, (.01)> .37 [significant correlations underlined]

Table 3

Zero-Order Correlations for Variables Using Only Statistically Significant Relationships [American Sample]

Sex		Sensory-Motor Deficits		Dis. Learning Deficits	
Activity	.48	Parent Rating D.L.	.48	Soc. Dev. Deficits	.37
Emotionality (I)	.46	Dis.Learning Deficits	.37	Sens.Motor Deficits	.37
Emotional Int.	.32	Parent Rating S.D.	.36	Parent Rating S.C.	.37
Persistence(III)	-.21	Parent Rating S.M.	.32	Parent Rating S.D.	.29
Adaptability	-.32	Soc.Develop. Deficits	.26	Distractibility	.25
		Persistence (III)	-.21	Approach-Withdrawal	-.26
				Adaptability	-.30
				Sociability (II)	-.31
				Persistence (III)	-.36
				Persistence	-.44
Self-Concept		**Social Dev. Deficits**		**Activity**	
Activity	.27	Dis.Learning Deficits	.37	Emotionality (I)	.94
		Distractibility	.32	Distractibility	.71
		Sensory-Motor Deficits	.26	Emotional Intensity	.64
		Parent Rating D.L.	.24	Sex	.48
		Persistence (II)	-.40	Self-Concept	.27
		Adaptability	-.40	Adaptability	-.32
		Persistence	-.42	Persistence	-.57
		Approach-Withdrawal	-.43	Persistence(III)	-.67
		Sociability (II)	-.48		
Adaptability		**Approach-Withdrawal**		**Emotional Intensity**	
Sociability (II)	.82	Sociability (II)	.92	Emotionality (I)	.87
Persistence	.57	Emotional Intensity	.53	Activity	.64
Persistence (III)	.56	Adaptability	.53	Approach-Withdrawal	.53
Approach-Withdrawal	.53	Persistence	.36	Distractibility	.36
Emotionality (I)	-.29	Emotionality (I)	.36	Sex	.32
Dis.Learning Def.	-.30	Persistence (III)	.25	Sociability (II)	.27
Sensory-Motor Def.	-.32	Parent Rating S.M.	-.25	Persistence (III)	-.27
Activity	-.32	Dis. Learning Def.	-.26		
Soc.Dev. Deficits	-.40	Soc. Dev. Def.	-.43		
Distractibility	-.50				

Note: Barclay scales underlined.

Table 3 (continued)

Distractibility	
Activity	.71
Emotionality (I)	.62
Emotional Intens.	.36
Social Dev. Def.	.32
Dis.Learning Def.	.25
Parent Rat.S.M	-.22
Sociability (II)	-.31
Adaptability	-.50
Persistence	-.84
Persistence (III)	-.95

Sociability (II)	
Approach-Withdrawal	.92
Adaptability	.82
Persistence	.51
Persistence (III)	.43
Emot.Intensity	.27
Sex	-.20
Dis.Learning Def.	-.31
Social Dev. Def.	-.48
Distraction	-.31

Persistence	
Persistence (III)	.96
Adaptability	.57
Sociability (II)	.51
Approach-Withdrawal	.36
Sex	-.20
Social Dev. Def.	-.42
Dis. Learning Def.	-.44
Activity	-.57
Distractibility	-.84
Emotionality (I)	-.44

Persistence (III)	
Persistence	.96
Adaptability	.56
Sociability (II)	.43
Approach-Withdrawal	.25
Sex	-.21
Sensory-Motor Def.	-.21
Emotional Intens.	-.27
Dis. Learning Def.	-.36
Social Dev. Def.	-.40
Emotionality (I)	-.55
Activity	-.67
Distractibility	-.95

Emotionality (I)	
Activity	.94
Emotional Intens.	.87
Distractibility	.62
Sex	.46
Approach-With.	.36
Adaptability	-.29
Persistence	-.44
Persistence(III)	-.55

Table 4

Zero-Order Correlations for Variables Using Only Statistically Significant Relationships

[Chinese Sample]

Sex	
Activity	.34
Sensory-Motor Def.	.30
Emotionality (I)	.29

Age	
Parent Rating S.M	-.29
Sensory-Motor Def.	-.33
Soc.Development Def.	-.38

Activity	
Emotionality (I)	.94
Emotional Intensity	.73
Distractibility	.58
Approach-Withdrawal	.40
Sex	.34
Parent Rating D.L.	-.28
Persistence	-.52
Persistence (III)	-.57

Emotional Intensity	
Emotionality (I)	.88
Activity	.73
Distractibility	.64
Approach-Withdrawal	.41
Persistence	-.55
Persistence (III)	-.62

Sensory-Motor Deficits	
Dis. Learning Deficits	.65
Soc. Development Def.	.51
Parent Rating S. M	.44
Sex	.30
Sociability (II)	-.29
Adaptability	-.31
Age	-.33

Adaptability	
Sociability (II)	.79
Persistence (III)	.55
Persistence	.52
Approach-Withdrawal	.32
Self-Concept	.32
Sensory-Motor Deficits	-.31
Emotionality (I)	-.33
Social Dev. Deficits	-.42
Distractibility	-.53

Distractibility	
Emotionality (I)	.66
Emotional Intesnity	.64
Activity	.58
Sociability (II)	-.26
Parent Rating D.L.	-.46
Adaptability	-.53
Persistence	-.85
Persistence (III)	-.97

Dis. Learning Deficits	
Sensory-Motor Deficits	.65
Approach-Withdrawal	.34
Sociability (II)	-.35

Soc. Development Deficits	
Sensory-Motor Deficits	.51
Approach-Withdrawal	-.32
Self-Concept	-.33
Age	-.38
Adaptability	-.42
Sociability	-.45

Approach-Withdrawal	
Sociability (II)	.83
Emotional Intensity	.41
Emotionality (I)	.40
Activity	.40
Social Dev. Deficits	-.32
Discriminatory L. Def.	-.34

Persistence	
Persistence (II)	.95
Adaptability	.52
Sociability (II)	.33
Soc. Dev. Deficits	-.33
Activity	-.52
Emotional Intensity	-.55
Emotionality (I)	-.58
Distractibility	-.97

Note: Barclay scales underlined.

Table 4 (continued_

Emotionality (I)		Sociability (II)		Persistence (III)	
Activity	.94	Approach-Withdrawal	.83	Persistence	.95
Emotional Intensity	.88	Adaptability	.79	Adaptability	.55
Distractibility	.66	Persistence	.33	Parental Rating D.L.	.40
Approach-Withdrawal	.40	Persistence (III)	.30	Sociability (II)	.30
Sex	.29	Self-Concept	.28	Activity	-.57
Parent Rating D.L.	-.30	Distractibility	-.26	Emotional Intensity	-.62
Adaptability	-.33	Sensory-Motor Deficits	-.29	Emotionality (I)	-.65
Persistence	-.58	Dis. Learning Deficits	-.35	Distractibility	-.97
Persistence(II)	-.65	Social Dev. Deficits	-.45		

Table 5

Number of Predictors Identified for American and Chinese Samples and Percentages in Common

Predictor	Total Identified for Samples	Number in Common	Percentage in Common
Sex	6	2	33
Age	3	0	--
SMP	10	3	33
DL	10	3	33
SC	5	1	20
SD	11	4	36
ACT	10	6	60
ADP	10	8	80
APP	10	4	40
EMI	7	5	71
DIS	11	7	63
PER	11	7	63
EMOT (I)	9	8	88
SOC (II)	11	7	63
PER (III)	12	7	58
TOTAL	136	72	53

Note: Parental Ratings not included.

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